

## REMARKS

Upon entry of the foregoing amendment, claims 1-9 are pending in the application, with claim 1 being the independent claim. Claim 1 is sought to be amended.

Claim 1 has been amended to recite that the ratio ( $MFR_{10}/MFR_2$ ) of  $MFR_{10}$  measured under a load of 10 kg and  $MFR_2$  measured under a load of 2.16 kg, both being measured at 190°C according to ASTM D-1238, and the molecular weight distribution ( $M_w/M_n$ ) of the ethylene/1-butene random copolymer (a), satisfy the relationship

$$M_w/M_n + 4.63 \leq MFR_{10}/MFR_2 \leq 14 - 2.9\text{Log}(MFR_2).$$

Support for this change can be found in the English-language specification as originally filed, e.g., at page 6, lines 2-8.

These changes are believed to introduce no new matter, and their entry is respectfully requested. Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

### **I. Rejection of the Claims Under 35 U.S.C. § 102**

Claim 1 is rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Tasaka *et al.*, JP 2002-322321 (“Tasaka”). (Office Action, at page 2, paragraph 2.)

According to the Office:

Tasaka *et al.* disclose an elastomer composition comprising: a) 100 parts by weight of at least one elastomer selected from the group consisting of a block copolymer comprising at least two of a polymer block A mainly consisting of an aromatic vinyl compound and at least one of a polymer block B mainly consisting of a conjugated diene compound, a hydrogenated block copolymer which is a hydride of the block copolymer and an olefinic copolymer rubber, b) 0.1-250 parts by weight of an amorphous polyolefin, c) 1-100 parts by weight of an oil, and d) 1-100 parts by weight of an olefin system, wherein the block copolymer is styrene butadiene styrene (SBS); the copolymer rubber is ethylene-1-butene; and the olefin system is atactic polypropylene (claims; [0025]; [0034]; [0043]; [0048]). Attention is directed to Example 6, wherein it demonstrates a composition comprising 35 parts by weight of SBS, 45 parts by weight of ethylene-butene rubber, 17.5 parts by weight of oil, 17.5 parts by weight of paraffin, and 20 parts by weight of polypropylene.

(Office Action, at page 2, paragraph 2, line 2, to page 3, line 2.)

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

To expedite prosecution and without acquiescing to the propriety of the rejection, Applicants have amended claim 1 to recite that the ratio ( $MFR_{10}/MFR_2$ ) of  $MFR_{10}$  measured under a load of 10 kg and  $MFR_2$  measured under a load of 2.16 kg, both being measured at 190°C according to ASTM D-1238, and the molecular weight distribution ( $Mw/Mn$ ) of the ethylene/1-butene random copolymer (a), satisfy the relationship:

$$Mw/Mn + 4.63 \leq MFR_{10}/MFR_2 \leq 14 - 2.9\text{Log}(MFR_2).$$

As described on page 6, lines 2-8, of the specification, this relationship between the ratio  $MFR_{10}/MFR_2$  and the molecular weight distribution of the ethylene/1-butene random copolymer (a) affects the moldability of the claimed resin compositions. If an ethylene/1-butene random copolymer satisfying this relationship is incorporated into the resin composition, the resin composition exhibits an excellent, highly desirable moldability. See also page 3, lines 5-11, of the specification.

Tasaka fails to disclose ethylene/1-butene random copolymers for use in resin compositions, in which the ratio ( $MFR_{10}/MFR_2$ ) and the molecular weight distribution of the ethylene/1-butene random copolymer satisfies the recited relationship:

$$Mw/Mn + 4.63 \leq MFR_{10}/MFR_2 \leq 14 - 2.9\text{Log}(MFR_2).$$

Because Tasaka fails to disclose each and every element of present claim 1, it cannot anticipate the claim.

Applicants believe that the rejection of claim 1 under 35 U.S.C. § 102(b) has been overcome and request that the rejection be withdrawn.

## **II. Rejection of the Claims Under 35 U.S.C. § 103**

Claims 2-9 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ahmed *et al.*, U.S. Pat. No. 6,184,291 ("Ahmed") in view of Tasaka. (Office Action, at page 3, paragraph 4.)

According to the Office, Ahmed discloses an elastomeric composition comprising a) from about 70 to about 90 percent by weight of a styrene triblock copolymer, b) from about 10 to about 30 percent by weight of an ethylene interpolymers characterized as an interpolymers

of ethylene with at least one C<sub>3</sub>-C<sub>20</sub>  $\alpha$ -olefin, and discloses the use of extender oils, but is silent on the amount of oil. (Office Action, at page 3, paragraph 4, lines 3-8.) The Office believes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the claimed resin composition because Tasaka demonstrates that 1-100 parts by weight of oil can be used to make the composition. (Office Action, at page 3, paragraph 4, line 15, to page 4, line 3.)

Applicants respectfully submit that the resin compositions and articles as presently claimed would not have been obvious in view of the combination of Ahmed and Tasaka, for at least the following reasons.

Ahmed is concerned with block copolymer compositions containing substantially inert thermoelastic extenders. Although the MFR, density, and molecular weight distribution (Mw/Mn) of the ethylene polymers disclosed in Ahmed may overlap with the ethylene/1-butene random copolymer (a) of the present invention, Ahmed does not teach or suggest for the disclosed ethylene polymers the specific relationship between MFR and molecular weight distribution (Mw/Mn) recited in the present claims.

Applicants thus submit that the ethylene/1-butene random copolymer (a) of the present claims is not taught or suggested in Ahmed. As discussed above, Tasaka also fails to disclose or suggest ethylene/1-butene random copolymers in which the MFR and the molecular weight distribution (Mw/Mn) of the copolymer satisfies the relationship recited in the present claims. Thus, Tasaka fails to remedy the deficiencies of Ahmed.

As a consequence, one of ordinary skill in the art, in view of Ahmed and Tasaka, would not have arrived at the claimed resin compositions at the time of the invention. The claimed resin compositions, therefore, would not have been obvious in view of these references.

Applicants further note that ethylene/1-butene random copolymers satisfying the specific relationship between MFR and molecular weight distribution recited in the present claims lead to the highly desirable moldability of the claimed resin compositions. This is demonstrated in the specification, e.g., in Table 2 at page 27 (reproduced below):

TABLE 2										
		Ex. 1	Ex. 2	Comp. Ex. 1	Ex. 3	Ex. 4	Comp. Ex. 2	Ex. 5	Ex. 6	Comp. Ex. 3
Composition	(a)	50			50			50		
	(b)		50			50			50	
	EOR			50			50			50
	G1650	50	50	50	50	50	50	50	50	50
	Polypropylene	20	20	2	20	20	20	20	20	20
	Pariffin oil	120	120	120	130	130	130	140	140	140
TS	MP	8	9	11	6	7	9	5	5	6
Shore A	---	33	32	45	18	18	30	15	14	27
Oil	24 hr	O	O	O	O	O	O	O	O	O
Bleed	48 hr	O	O	O	O	O	O	O	O	O
	120 hr	O	O	O	O	O	O	O	O	O
	240 hr	O	O	O	O	O	O	O	O	O
	2 weeks	O	O	X	O	O	X	O	O	X

The Shore-A hardness is a bellwether of moldability, with lower values of Shore-A hardness correlating with higher moldability of the composition. Comparative Examples 1-3, which do not contain an ethylene/1-butene random copolymer that satisfies the specific claimed relationship between MFR and the molecular weight distribution, have higher Shore-A hardness values than those of the Examples, which contain ethylene/1-butene random copolymers that satisfy this relationship.

The claimed resin compositions have an excellent moldability, making it is easy to mold a blow-molded body, a sheet-molded body, an extrusion-molded body, irregular shaped extrusion-molded body, or injection-molded body using the compositions. During production of the resin composition as described in the specification, the respective components can be kneaded with excellent dispersibility. The claimed resin composition can be molded into molded articles of various shapes by employing known molding methods, without particular limitation, and can be processed into products, for example, fibers, films, coatings and molded products, by using any of the methods well known in the related art which are appropriate for thermoplastic compositions. The claimed resin compositions are particularly appropriate for producing manufactured articles by molding operation.

These effects are not shown in either Ahmed or Tasaka.

In summary, for at least the reasons discussed above, Applicants believe that one of ordinary skill in the art, in view of Ahmed and Tasaka, would not have arrived at the resin compositions and articles of pending claims 2-9 at the time the invention was made.

Accordingly, the compositions and articles recited in these claims would not have been obvious in light of Ahmed and Tasaka.

Applicants believe that the rejection of claims 2-9 under 35 U.S.C. 103(a) has been overcome and request that the rejection be withdrawn.

### CONCLUSION

Based on the foregoing remarks, Applicants respectfully request that the Examiner reconsider all rejections and that they be withdrawn.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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